



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Mark Dinsmore

Serial No.: 10/790,635  
**(which is a reissue of 6,480,568, issued December 10, 2002)**

Filed: March 1, 2004

Title: OPTICALLY DRIVEN THERAPEUTIC RADIATION SOURCE

Attorney Ref.: 56249-172 (PHLL-155RE)

---

**CERTIFICATE OF MAILING (37 C.F.R. § 1.8(a))**

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail under 37 CFR 1.8(a) in an envelope addressed to Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.

Date: 11/4/04

Elsie M. Saraglow  
Elsie M. Saraglow

---

Mail Stop Missing Parts  
Assistant Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

**COMBINED DECLARATION AND POWER OF ATTORNEY**  
**IN REISSUE APPLICATION**

Sir:

I, Mark Dinsmore, declare that:

1. My residence address is 25 Wadsworth Road, Sudbury, MA 01776.
2. I am a citizen of the United States of America.
3. I believe I am the original, first and sole inventor of the subject matter that is described and claimed in United States Patent Number 6,480,568B2 (hereinafter "the '568 patent"), granted on December 10, 2002, and for which I solicit a reissue patent.
4. I have read and understand the contents of the attached reissue application, including the specification and claims.

5. I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

6. I believe the '568 patent, which matured from application Serial No. 09/884,561, filed on June 19, 2001, to be wholly or partly inoperative or invalid by reason of my claiming less than I had a right to claim in the patent. The error includes not having claimed a probe having a radiation source at a distal end, and including: a) a probe assembly including an optical delivery structure adapted for transmitting optical radiation; b) an optical source for generating optical radiation directed to a proximal end of the optical delivery structure; c) a radiation source coupled to a distal end of the optical delivery structure, the radiation source including a thermionic cathode and a target element, i) wherein the thermionic cathode is responsive to said optical radiation transmitted to the distal end to emit electrons; and ii) wherein said the element is responsive to incident electrons emitted from the thermionic cathode to emit radiation; and d) means for establishing an accelerating electric field extending between the electron source toward the target element, the electric field being effective to accelerate electrons emitted from the thermionic cathode toward the target element, wherein the optical delivery structure is adapted to direct a beam of optical radiation transmitted therethrough to impinge upon a surface of the thermionic cathode, and wherein the beam of transmitted optical radiation has a power level sufficient to heat at least a portion of the surface to an electron emitting temperature so as to cause thermionic emission of electrons from the surface.

7. All errors being corrected in the reissue application, up to the time of filing this declaration, arose without any deceptive intent.

8. I appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Mark G. Lappin, Registration No. 26,618  
Toby H. Kusmer, Registration No. 26,418  
Elizabeth E. Kim, Registration No. 43,334  
David M. Mello, Registration No. 43,799  
Jeffrey J. Miller, Registration No. 39,773  
Brian Colandreo, Registration No. 42,427  
Jeffrey Barclay, Registration No. 48,950

**CUSTOMER NUMBER 23630**

Send correspondence to the address associated with Customer Number 23630:

---

SEND CORRESPONDENCE TO:

DIRECT TELEPHONE CALLS TO:

Mark G. Lappin  
McDermott, Will & Emery  
28 State Street  
Boston, MA 02109

---

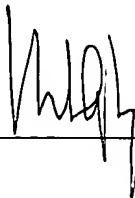
Mark G. Lappin (617-535-4043)

10. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

---

Date

11/4/04



- FOR MARK DINSMORE



UNITED STATES  
PATENT AND  
TRADEMARK OFFICE

NOV 08 2004  
PATENT & TRADEMARK OFFICE  
CITY 5369

MAY 01, 2002

MCDERMOTT, WILL & EMERY  
ELIZABETH E. KIM  
28 STATE STREET  
BOSTON, MA 02109

RECEIVED  
RPTAS  
MAY 07 2002  
MWAE

Commissioner for Trademarks  
Arlington, VA 22202-3513  
[www.uspto.gov](http://www.uspto.gov)



\*102009657A\*

UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF  
THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS  
AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER  
REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE  
INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA  
PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD  
FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY  
CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723.  
PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE,  
ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY,  
SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 02/25/2002

REEL/FRAME: 012640/0834

NUMBER OF PAGES: 4

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:

DINSMORE, MARK

DOC DATE: 01/25/2002

ASSIGNEE:

PHOTOELECTRON CORPORATION  
5 FORBES ROAD -SUITE 2  
LEXINGTON, MASSACHUSETTS 02421

SERIAL NUMBER: 10005290  
PATENT NUMBER:

FILING DATE: 12/04/2001  
ISSUE DATE:

SERIAL NUMBER: 60229204  
PATENT NUMBER: 9

FILING DATE: 08/31/2000  
ISSUE DATE:

SERIAL NUMBER: 09884664  
PATENT NUMBER:

FILING DATE: 06/19/2001  
ISSUE DATE:

SERIAL NUMBER: 09884561  
PATENT NUMBER:

FILING DATE: 06/19/2001  
ISSUE DATE:

56245-029  
PHL-RS

012640/0834 PAGE 2

SERIAL NUMBER: 10005289  
PATENT NUMBER:

FILING DATE: 12/04/2001  
ISSUE DATE:

SERIAL NUMBER: 09884229  
PATENT NUMBER:

FILING DATE: 06/19/2001  
ISSUE DATE:

SERIAL NUMBER: 10005287  
PATENT NUMBER:

FILING DATE: 12/04/2001  
ISSUE DATE:

TONYA LEE, EXAMINER  
ASSIGNMENT DIVISION  
OFFICE OF PUBLIC RECORDS

NOV 08 2001

# PATENTS O

03 1-2002

**NT OF COMMERCE  
nd Trademark Office**

## **Tab settings ➔ ➔ ➔**

To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies): Mark Dinsmore		2. Name and address of receiving party(ies):  Name: <u>Photoelectron Corporation</u>
<i>MCD 2/25/2</i>		Internal Address: _____ _____ _____
Additional names(s) of conveying party(ies) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
3. Nature of conveyance:  <input checked="" type="checkbox"/> Assignment <input type="checkbox"/> Merger <input type="checkbox"/> Security Agreement <input type="checkbox"/> Change of Name <input type="checkbox"/> Other _____		Street Address: <u>5 Forbes Road - Suite 2</u> _____ _____
Execution Date: <u>January 25, 2002</u>		City: <u>Lexington</u> State: <u>MA</u> ZIP: <u>02421</u>
		Additional name(s) & address(es) attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
4. Application number(s) or registration numbers(s):  If this document is being filed together with a new application, the execution date of the application is: _____		
A. Patent Application No.(s)  <u>10/005,290</u> <u>09/884,561</u> <u>09/884,229</u> <u>60/229,204</u> <u>10/005,289</u> <u>10/005,287</u> <u>09/884,664</u>		B. Patent No.(s)
		Additional numbers attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Name and address of party to whom correspondence concerning document should be mailed:  Name: <u>Elizabeth E. Kim</u>  Internal Address: <u>McDermott, Will &amp; Emery</u>  _____ _____ _____		6. Total number of applications and patents involved: <u>7</u>
		7. Total fee (37 CFR 3.41):.....\$ <u>280.00</u>
		<input checked="" type="checkbox"/> Enclosed - Any excess or insufficiency should be credited or debited to deposit account  <input type="checkbox"/> Authorized to be charged to deposit account
Street Address: <u>28 State Street</u>  03/11/2002 GTOM11 00000075 10005290  01 FC:581 City: <u>Boston</u> 280.00 0P State: <u>MA</u> ZIP: <u>02109</u>		8. Deposit account number:  <u>50-1133</u>

**DO NOT USE THIS SPACE**

**9. Statement and signature.**

*To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.*

Elizabeth E. Kim

Elizabeth E. Kim

**February 6, 2002**

**Name of Person Signing**

**Signature**

Total number of pages including cover sheet, attachments, and document:

4

Date

**ASSIGNMENT OF PATENT RIGHTS**

I, **Mark Dinsmore**, of **85 Horse Pond Road, Sudbury, MA 01776**, having invented certain inventions and improvements embodied and described in the patent applications (the "Patent Applications") listed in the attached **Schedule of Patent Applications** and which forms part of this Assignment, for \$1 and other good and valuable consideration, receipt and sufficiency of which are hereby acknowledged from **Photoelectron Corporation.**, a Massachusetts Corporation having a principal place of business at **5 Forbes Road - Suite 2, Lexington, MA 02421-7305 USA**, and hereinafter referred to as the Assignee (which term shall include the successors and assigns), do hereby sell, assign and transfer to the Assignee my entire right, title, and interest, in and throughout the United States of America (including its territories and dependencies) and all countries foreign thereto, in and to and under said application (which term shall include hereinafter where the context so admits all divisional, continuing, reissue and other patent applications based thereon) and all inventions (which term shall include each and every such invention, or any part thereof) therein described, and any and all patents and like rights of exclusion (including extensions thereof) of any country which may be granted on or for said inventions or on said application.

And for the same consideration I do also hereby sell, assign and transfer unto the Assignee all my rights under the International Convention for the Protection of Industrial Property, the Patent Cooperation Treaty and all other treaties of like purpose in respect of said inventions and said application, and do hereby authorize the Assignee to apply in my name or in its own name (in a manner to be agreed upon by the Assignee) or its designee, for patents and like rights of exclusion on or for said inventions in all countries, claiming (if the Assignee so desires) the priority of the filing date of said application under the provisions of said Convention, Treaty or any such other Convention or Treaty;

And for the same consideration I do hereby agree for myself and for my heirs, executors and administrators, promptly upon request of the Assignee, to execute and deliver without further compensation any power of attorney, assignment, original, divisional, continuing, reissue or other application or applications for patent or patents or like rights of exclusion of any country, or other lawful documents and any further assurances that may be deemed necessary or desirable by the Assignee fully to secure to it said right, title, and interest as aforesaid in and to said inventions, application, and said several patents and like rights of exclusion, or any of them, all, however, at the expense of the Assignee;

And I do hereby authorize and request the Commissioner of Patents and Trademarks of the United States of America and the corresponding Official of each country foreign thereto to issue to the Assignee any and all patents and like rights of exclusion which may be granted in any country upon said application or on or for said inventions;

And I do hereby covenant for myself and for my respective legal representatives and agree with the Assignee that I have granted no right or license to make, use or sell said inventions to anyone except the Assignee, that prior to the execution of this deed my right, title and interest in and to said inventions has not been otherwise encumbered by me, and that I have not executed and will not execute any instrument in conflict herewith.

IN WITNESS WHEREOF, I hereunto set my hand and seal on the day and year hereinafter noted.



Mark Dinsmore

State of Massachusetts)  
County of United States) ss.

Before me this 25<sup>th</sup> day of January, 2002, personally appeared Mark Dinsmore, and acknowledged the foregoing instrument to be his or her free act and deed.

Elizabeth E. Kim  
Notary Public

SEAL

PHLL-000 (56249-010)

McDERMOTT, WILL & EMERY  
28 State Street  
Boston, MA 02109  
(617) 535-4000

## **MARK DINSMORE ASSIGNMENT**

### **SCHEDULE OF PATENT APPLICATIONS**

The Patent Applications include:

- 1) U.S. Patent Application Serial Number 10/005,290, filed December 4, 2001, entitled THERAPEUTIC RADIATION SOURCE WITH IN SITU RADIATION DETECTING SYSTEM
- 2) U.S. Patent Application Serial Number 09/884,561, filed June 19, 2001, entitled OPTICALLY DRIVE THERAPEUTIC RADIATION SOURCE
- 3) U.S. Patent Application Serial Number 09/884,229, filed June 19, 2001, entitled OPTICALLY DRIVEN THERAPEUTIC RADIATION SOURCE HAVING A SPIRAL-SHAPED THERMIONIC CATHODE
- 4) U.S. Provisional Patent Application Serial Number 60/229,204, filed June 19, 2001, entitled OPTICALLY DRIVEN THERAPEUTIC RADIATION SOURCE WITH VOLTAGE GRADIENT CONTROL
- 5) U.S. Patent Application Serial Number 10/005,289, filed December 4, 2001, entitled OPTICALLY DRIVEN THERAPEUTIC RADIATION SOURCE INCLUDING A NON-PLANAR TARGET CONFIGURATION
- 6) U.S. Patent Application Serial Number 10/005,287, filed December 4, 2001, entitled THERAPEUTIC RADIATION SOURCE WITH INCREASED CATHODE EFFICIENCY
- 7) U.S. Patent Application Serial Number 09/884,664 filed June 19, 2001, entitled X-RAY SOURCE FOR MATERIALS ANALYSIS SYSTEMS